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the issue of July 10th, for there are many points connected with this question of great practical interest. I assume that Prof. Mall is speaking of teaching anatomy to medical students. If I am mistaken as to this, I have nothing but praise for his methods; but if he is speaking of medical education it seems to me that he puts himself out of court at once. He says: "The object of the laboratory is to teach students, to train investigators and to investigate. Although the first mentioned requires the greater portion of the instructor's time; its importance is by no means as great as the second and third." I submit that the first and most important duty of a professor in a medical school is to teach the students his branch in the manner best fitted to their future needs as practitioners of medicine. He must find time for scientific research when he can, and it must be subordinate to his teaching, and to his teaching for a practical purpose. Prof. Mall is very severe on the lecture system. He mentions that several professors, 'even' of anatomy, declare that they learned nothing that way. I wish my name to be added to the list; but I conceive the reason to be that I had no lectures worth listening to. It seems to me that there is a fallacy in calling the method stupid because none of us would choose it for himself were he a student. Of course, we would choose to be the private students of some distinguished anatomist; but this is impossible for all the members of a large class. Moreover, as implied above, we professors of anatomy are hardly fair representatives of the rank and file of medical students, who are studying anatomy as a means and not as an end. Again, I am not sure precisely what is meant by 'lectures,' as Prof. Mall admits that 'lectures with demonstrations are certainly valuable—more valuable than the lectures with text-books alone.' But who does lecture with a text-book? It is true that I have heard of a professor of anatomy who gave his class a certain number of pages of Gray learned by heart; but what competent man does not illustrate his lectures to the best of his ability? It is his duty to emphasize certain parts of his subject and to go lightly over others, to point out the practical deductions, to show what facts are for, what against, prevail-

ing theories. If lectures are to be abolished the professor might be abolished too were it not necessary for him to lay out the course and to see it carried out. In a large school the teaching or guiding of small groups must of necessity be left to assistants of varying learning and of varying power of imparting it, and were there no lectures the professor's influence would be lost. There must be students of all grades, and to my mind those who learn the most from the lectures are the best ones. The worst are hopeless anyway; probably a little more so in the laboratory course that they neither understand nor appreciate.

But, though I firmly believe in the anatomical lecture, I believe in personal study, in demonstration to small classes, and in close supervision. I am developing these at Harvard as fast as I can. Prof. Mall's plan strikes me as most admirable for the training of scientists; I do not believe in it even for good medical students; certainly I do not want to have it implied that those who differ are behind the times in matters of medical education.

THOMAS DWIGHT.

HARVARD MEDICAL SCHOOL.

IS NOT THIS COUNTRY RIPE ENOUGH TO ADOPT THE METRIC SYSTEM?

ON reading in your issue of July 17, Prof. Slosson's clear and cogent exhibition of the present condition of Decimal Numeration in the United States, I am impressed by the rapidity with which a great change in the habits of thought of our people has been brought about. The paramount influence of the custom of reckoning in dollars and cents is palpable; it first became universal on the disappearance from circulation of the Spanish fractional coins which were common during the first half of this century. But beside that it is evident that the change of usage from 'common' fractions to decimals has been due in some measure to the improved general character of the school arithmetics, faulty enough though many of these books may still be. The change bears emphatic witness to the efficacy of scientific methods of teaching and to the good results which must necessarily follow from the action and reaction

of scientific methods in the class room upon the affairs of every-day life. Barring the risk of some vicious compromise, it should be a hopeful sign for the speedy adoption of the metric system that the American people are now so thoroughly imbued with the decimal method of notation and have become impatient of other forms of reckoning.

As bearing on the difficulties felt to-day by several eminent Englishmen, I can testify that thirty years ago when serving in a great manufacturing establishment under a man of more than ordinary ability and intelligence, who had been thoroughly drilled in the intricacies of the older arithmetics, it was a matter of surprise to us youngsters that on presenting any decimal computation to our chief he invariably converted the decimals into vulgar fractions, not at all for the sake of the double verification of our work, but that he might comprehend clearly the matter in hand. We respected the thoroughness with which the old schooling had taken possession of the man, though we could not but marvel that the number of his fingers and toes had so little influenced the workings of his mind. I have reason to believe that many elderly merchants and manufacturers in this vicinity were at that time of the same habit and opinion as my friend; in fact, their training had been similar to his. But it would probably be difficult to find many such men in the country to-day.

It may seem incredible to most of your readers, as it does to myself, that the per cent. mark (%), now in universal use, is in this country a modern innovation. In the year 1858, on the occasion of printing a 'Dictionary of Solubilities,' I found that the character % was unknown to the printers and type founders of Boston and Cambridge, and was not to be had in the market. At my instigation, and at my own expense, the leading type founder in Boston prepared at that time a punch and matrix and cast types of the character in question. It is of interest to remark, by the way, that the procuring of this type was the result of French influence. In my capacity of American *collaborateur* of the old *Répertoire de Chimie Appliquée*, I had become familiar with the economy and convenience of the per cent. mark.

As regards the inconvenience of changing from the present to the metric system, it seems to me that it would be felt more keenly in measurements relating to buildings than in the matter of weights or of measures of capacity. Most existing constructions have been made in terms of feet and inches. 'Dimension work' and 'dimension lumber,' all joists and beams, whether of wood or iron, bricks, boards, castings and moulds for castings, are measured by feet and inches. Plans and specifications have been drawn, stated and acted upon in these terms. Feet and inches have full possession of the bodies and souls of masons, carpenters and other mechanics, and it would doubtless be highly inconvenient in many instances, especially in the case of repairs and reconstructions, to make the inch and the centimeter lie down together harmoniously.

Here is an impediment which must be faced, and the public needs to be taught how much more rational it would be to accept the metric system in its entirety than to acquiesce in the gradual subdivision of our common measures into tenths, for the sake of a simplification which would be incomplete at the best. The practical experience of the French and other nations has shown emphatically that the difficulty just now mentioned is in no sense insuperable. Every instructed person knows that the inconveniences incidental to the adoption of the system have been met and overcome by most of the civilized nations. That some small hitches may have occurred in respect to non-essential details does not in the least detract from the great gain which has everywhere resulted from the adoption of the metric system. For example, it is simply amusing to hear the hawkers in the streets of Paris offer their *haricots verts* at so many *sous* the *demi-kilo*. The habit shows merely how, in the final shadings, strict verbal and logical accuracy must give way to a combination of inherited instinct or sentiment and practical convenience. There is no sense anyway or anywhere in stickling too strongly for *le pied de la lettre*, though for the sake of preventing fraud it was, perhaps, well enough for the French authorities to have accepted the term demi-kilogram rather than to have encouraged the perpetuation of the old

word, *livre*. In respect to this country, however, there may be danger, as Prof. Slosson intimates, that we may after all drift into a less satisfactory system than the metric, in case the adoption of the latter should be too long delayed.

At the present moment we are really in some sort in the predicament of the boy blubbering at the street corner, who explained to the sympathetic stranger that his hands were so cold that he couldn't put on his mittens because it would 'hurt.' It would have been false and futile to have told the urchin that his hands were not cold or that the enterprise he shrank from could bring no pain, but it might have been well to convince him that he was a baby, and to have suggested ways and means of taking the leap with the least possible inconvenience.

F. H. STORER.

SCIENTIFIC LITERATURE.

Preliminary Synopsis of the American Bears. By DR. C. HART MERRIAM. Proc. Biol. Soc. Washington, X., 1896, pp. 65-83, pll. iv-vi. April 13, 1896.

Material for the comparative study of any of the larger mammals is exceedingly troublesome to bring together in satisfactory amount, owing to its bulky character and the labor and expense of its preparation and transportation. This is particularly the case with our North American bears, where the large series of specimens, skins as well as skulls, necessary for their detailed study, is especially difficult to acquire. By the expenditure of much time and labor Dr. Merriam has been able to gather for the present investigation about 200 skulls, but, owing to the lack of proper material, has been unable to treat of the external characters of the species and sub-species he believes are entitled to recognition. In fact, of several of the forms here for the first time recognized no skins exist in any of our museums. We, hence, have here merely a preliminary announcement of the results of a study of the cranial and dental characters, which is 'to be followed later by a more comprehensive treatise.' This preliminary announcement, however, is most welcome, since it has been for some time evident that the num-

ber of forms of North American bears is much greater than has been currently recognized.

As all are aware who have made a study of bears, the range of individual variation, in cranial as well as in external characters, is quite extended, in addition to which there is much variation due to age and sex. This Dr. Merriam duly concedes, and still finds, after making allowance for such differences, characters that appear to be constant, by which the species and sub-species may be recognized. In view of what is now known of the variability, with varying conditions of environment, of the smaller North American mammals, it is not surprising that Dr. Merriam has found it necessary to recognize a considerable number of new forms. Whether their status will be that of full species or in some cases that of sub-species merely, it is evidently too early to determine. Of the eleven species here formally admitted, five are described as new, and two additional sub-species are incidentally indicated as probably worthy of recognition.

Heretofore it has been customary to refer the bears of North America to three groups, consisting of the polar bear type, the grizzly bear type and the black bear type. To these Dr. Merriam adds the Sitka bear type and the Kadiak bear type. The polar bear was long since separated from the land bears as *Thalarctos maritimus* (Linn.), and remains thus far a monotypic group. The black bears were also some time since distinguished as a separate sub-genus (*Euarctos* Gray) of the genus *Ursus*, in which latter genus all the other North American bears are still retained.

Dr. Merriam considers that "the black bears may be separated into at least four species, having more or less circumscribed geographic ranges." He recognized of the grizzly bear group also four more or less marked forms. As distinct from the grizzlies, Dr. Merriam distinguishes, as already said, two other types of large bears, one of which consists of two species and the other of one, the *Ursus middendorffi*, 'the largest of living bears,' and 'differing markedly from the other American species.'

The species and sub-species recognized in this important paper are the following:

1. Polar Bear, *Thalarctos maritimus* Linn.